KALASHNIKOV, V. I.

report to be presented at the 1st Intl Congress of the Intl Federation of Automatic Control, 25 Jun-5 Jul 1960, Moscow, USSR.

AGEYKIN, D. I. - "Compensating thermo-magnetic gas analysers"
ANDREYEV, N. I. - "Method of determining the optimum dynamic system according to the criterion of the functional extra, which is a given function of several other functions"
AYZERMAN, M. A., and GANTMAKHER, F. R. - "Some problems of the theory of nonlinear systems of automatic regulation with discontinuous characteristics"
BARBASHIN, E. A. - "Concerning the organization of the LYAPUNOV function for nonlinear systems"
BASHARIN, A. V. - "Graphic methods of synthesis of nonlinear systems of automatic regulation"
BASHTA, T. M. - "Problems of the application of high liquid pressures for automatic systems"
BEDEL'BAYEV, A. K. - "The theory of stability of regulation systems"
BELIKOV, YU. K. - "Multicoordinate nonlinear interpolator for program control of machines"
BERENDS, T. K., and TAL', A. A. - "Pneumatic alloy systems"
BERNHADSKIY, V. L., KALASHNIKOV, V. I., KNYAZHEVSKIY, V. V., MAZIN, L. V., POPOV, G. A. - "Automated electric drive of the propeller installation of the atomic icebreaker 'Lenin'"
BESEKERSKIY, V.A., and FEDOROV, S. M. - "Application of the equivalent transmission function in the calculation of follower systems by the logarithmic frequency curve method"
BILIK, R. V., MIKHAYLASHVILI, V. A., and FRANGISHVILI, Z. V. - "Contactless telemechanical systems with temporary separation of channels"
BOLTYANSKIY, V.G., GAMKRELIDZE, R. V., MISHCHENKO, YE. F., and PONTRYAGIN, L. S. - "The maximum principle in the theory of optimum control processes"
BROZGOL', M. M. - "Automated electric drives of a metallurgical plant"
BUROVOY, I. A. - "Automatic regulation of froth-layer processes in nonferrous metallurgy"

KALASHNIKOVA, V.I.; SAMOYLOVICH, D.M.; PEVCHEV, Yu.P.; FINOGENOV, K.G.

Effect of the electric field on the density of the blackening of photographic emulsions. Zhur.nauch. i prikl.fot. i kin. 9 no.6: 464-466 N-D '64. (MIRA 18:1)

1. Moskovskiy inzhenerno-fizicheskiy institut.

KALASHNIKOV, V.I. (Moskva)

Use of the Hall effect in current regulators. Avtom. i telem. 26 no.5:932-933 My '65. (MIRA 18:12)

1. Submitted May 20, 1964.

SOV/105-59-10-10/25

8(3)

AUTHORS: Bershadskiy, V. L., Kalashnikov, V. K., Kryazhevskiy, V. V., Popov, G. A. (Moscow)

TITLE: The Electric Drive of the Screws of the Atomic Ice-breaker "Lenin"

PERIODICAL: Elektrichestvo, 1959, Nr 10, pp 50-56 (USSR)

ABSTRACT: The atomic ice-breaker "Lenin" is equipped with a nuclear fuel-driven power system. Steam turbines serve as prime mover. Power is electrically transmitted from the turbines to the screws. The ice-breaker has a water displacement of 16,000 t, three screws, an over-all length of 134 m, a beam of 27.6 m, a turbine power of 44,000 hp, a top speed of 18 knots; the number of revolutions of the middle screw is 195 rpm at top speed, that of the outside screws is 215 rpm (Ref 1). The screws are driven with direct current according to the motor-generator system. The three electric screw motors are fed by four turbogenerator units of constant number of revolutions. A voltage of 1,200 v, unprecedented in shipbuilding, is used for the screws. The electric motor of the middle screw has two armatures with 9,800 hp each. The electric motors of the outside screws have two armatures with 4.900 hp each.

Card 1/3

Further, they are artificially ventilated and equipped with an air cooler. The generators have two armatures with 1,920 kw and 600 v each, 595 rpm, self-ventilation, and an air cooler. Each turbine is connected with two generators through a gear. The two middle armatures of one generator are connected in parallel. The electric motor of the screw is fed by this latter generator, and the electric motors of the outside screws are fed by the armatures of the second generators of the turbine unit. Hence, each turbine unit feeds simultaneously the three electric motors of the screws (Fig 1). Figure 2 shows and describes the circuit diagram of the main circuit of the middle electric motor. The armatures of a screw motor together with their generators form two independent circuits. The control is described, and figure 4 shows that of the medium electric motor. The rated constants of the main machines are chosen for the most difficult mode of operation, i.e. that in mooring in which the ship is immobile with respect to the water (Curve 3 on Fig 3). The screws are operated by remote control. Due to the fact that the rotary amplifiers serve as exciters, the control devices could be made of mag-slips.

Thus, the design was simplified and the control devices became much more reliable. Figure 5 shows such a control device. There are 6 figures, 1 table, and 2 Soviet references.

SUBMITTED: May 30, 1959

KALASHNIKOV, V.K.

Vsesoyuznoye ob"yedinennoye soveshchaniye po avtomatizatsii proizvodstvennykh protsessov v mashinostroyenii i avtomatizirovannomu elektroprivodu v promyshlennosti. 3d, Moscow, 1959

Elektroprivod i avtomatizatsiya promyshlennykh ustanovok; trudy soveshchaniya (Electric Drive and Automation in Industrial Systems; Transactions of the Conference) Moscow, Gosenergoizdat, 1960. 470 p. 11,000 copies printed.

General Eds.: I.I. Petrov, A.A. Sirotin, and M.G. Chilikin; Eds.: I.I. Sud, and E.F. Silayev; Tech. Eds.: K.P. Voronin, and G.Ye. Larionov.

PURPOSE: The collection of reports is intended for the scientific and technical personnel of scientific research institutes, plants and schools of higher education.

COVERAGE: The book is a collection of reports submitted by scientific workers at plants, scientific institutes and schools of higher education at the third Joint All-Union Conference on the Automation of Industrial Processes in Machine Building and Automated Electric Drives in Industry held in Moscow on May 12-16, 1959. The Conference was called by the Academy of Sciences USSR, the Gosplan SSSR (State Planning Commission USSR), the GNTK SSSR, the Gosudarstvennyy Komitet po avtomatizatsii i mashinostroyeniyu (State Committee on Automation and Machine Building) and the Natsional'nyy Komitet SSSR po avtomaticheskomu upravleniyu (USSR National Committee on Automatic Controls) and prepared by the Nauchno-tekhnicheskiy komitet po avtomatizirovannomu elektroprivodu (Scientific and Technical Committee on Automated Electric Drives), the MEI (Moscow Institute of Energetics), the VNIIEM, the IAT (Institute of Automation and Telemechanics) of the Academy of Sciences USSR, and the Komissiya po tekhnologii mashinostroyeniya Instituta mashinovedeniya AN SSSR (Commission on the Technology of Machine Building of the Institute of Science of Machines of the Academy of Sciences USSR). It was the purpose of the Editorial Board to arrange the reports in a way which would ensure a relatively systematic presentation of theoretical and practical problems relating to electric drives and automatic controls of industrial mechanisms used in various branches of industry. Basic problems of automated electric drive and their solution are outlined. The book also contains articles on electric machinery and means of automation. Considerable attention is paid to noncontact automatic control systems, including systems with semiconductor devices and magnetic amplifiers, and to computers intended both for the analysis and the synthesis of linear and nonlinear automatic regulation and control systems. Reports already published in journals or official publications have been considerably abbreviated; those which have appeared in volume V of VII EP transactions or in the journal "Elektrichestvo" are marked with an asterisk. No personalities are mentioned. References accompany some of the papers.

PART I. GENERAL PROBLEMS CONCERNING THE THEORY AND PRACTICE OF ELECTRIC DRIVE AND AUTOMATION OF CONTROL

PART III. ELECTRIC DRIVES FOR MECHANISMS OF VARIOUS BRANCHES OF INDUSTRY

23,

Automatic electric ...

following are the characteristics of the ship: displacement - 16,000 tons; maximum length - 134 m; maximum width - 27.6 m; turbine power - 44,000 H.P.; maximum speed - 18 knots; number of propellers - 3; revolutions at maximum ship speed - 195 r.p.m. for the center and 215 r.p.m. for the side propellers; period of autonomy - 1 year. The electric drive system feeds the three propeller d.c. motors from four turbo-generator aggregates, operating at constant speed. The total turbo-generator power is divided between the propeller shafts in the ratio 1 : 2 : 1, so that the center propeller, least exposed to damage, absorbs half the total system power. The drive uses 1200 v.d.c. The propeller motors are of a twin-armature type, 9800 H.P. per armature of the center propeller and 4900 H.P. per armature of the side shafts motors. The excitation generators, also of a twin-armature type have a power of 1920 kw per armature, at the armature voltage of 600 v and 595 r.p.m. Each turbo-generator feeds simultaneously three propeller shaft motors. The center propeller can be driven even when only one turbine is in operation. The armatures of each propeller shaft motor form, together with their

Card 2/3

generators, two independent circuits. The nominal parameters of main machines are chosen for the heaviest of the ship drive situations, i.e. when the ship is stationary with respect to water. The control system was chosen from the point of view of limiting the reverse power generated in braking. This has been achieved by a voltage feedback in the control generator winding. In analyzing the system on an analogue computer it was found that without the feedback stabilizing networks the system becomes unstable at an oscillating frequency of about 1c/s. The feedbacks required were found to be variable voltage feedbacks in the amplidyne of the generator exciter and motors together with a variable main current feedback. The time of transient with ship not moving is 10 sec., when reversing - 27 sec. and when reversing in free water - 35 sec. The switching in the main, excitation and control circuits is by means of selective generator switches. Each propeller has 4 selective switches, each having 3 main contacts at 6400 amp., for the center and at 3200 amp for the side propellers. Remote control of the propulsion system is used. In discussion, questions were put by G.A. Popov; I.P. Freydzon (USSR) rounded up the discussion. There are 7 figures, 1 table and 3 Soviet-bloc references.

Card 3/3

L 14233-66

ACC NR: AP5024906

interaction; $P=p^*/\rho_\infty^* U^2$; $U=U^*/U^*$; $H=H^*/H^*$; $r=r^*/R_b^*$ - are, respectively, the non-dimensional pressure, velocity, magnetic field intensity and the polar coordinate. After suitable transformations, the computer programmer is presented with the differential equation (3) for $\varphi(y)$, closely related to a basic assumed component of the velocity potential function $\varphi(r,\theta)$, with the initial conditions (4):

$$\varphi'''\varphi(1-ky)^3-\varphi\varphi''k(1-ky)^2-\varphi\varphi'k^2(1-ky)-2k^3\varphi^2+ \\ +k(\varphi')^2(1-ky)^2-\varphi'\varphi''(1-ky)^3=Sk^3\varphi; \quad (3)$$

$$\varphi=1;\ \varphi'=-1;\ \varphi''=1-3k+2k^2 \quad (4)$$

for $y = 0$

A similar analysis is performed in the case of magnetic field perpendicular to the surface of the cylindrical body. The results of computer calculations, performed with the utilization of the Runge-Kutta approximation technique, showed that the parallel magnetic field has no substantial influence on the gas flow. The perpendicular magnetic field, in aggreement with known experimental data on the flow around a magnetized sphere, has been found to exert a considerable influence on the flow pattern. Authors thank prof. A.B. Potapov for his review of the paper and for his comments. Orig. art. has 4 figures, 16 formulas.

SUB CODE: 20 SUBM DATE: 06Dec64/ ORIG REF: 004 OTH REF: 001

Card 2/2

KUZMICHENKO, L.F.; PODZOLKOV, M.I.; KALASHNIKOV, V.M.

Concerning M.IA.Finkel's article "Modernization of the technological procedures in ammonium sulfate producing sections." Koks i khim. no.12:37 '62. (MIRA 16:1)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy koksokhimicheskoy promyshlennosti.
(Ammonium sulfate)

CATEGORY : USSR
CATEGORY : Cultivated Plants. Potatoes. Vegetables. Cucurbits.
ABS. JOUR. : Ref Zhur -Biologiya, No. 1 , 1959, No. 1645

Author : Kalashnikov, V.M.
INST. :
TITLE : Urgent Problems in the Struggle with Virus Diseases.

ORIG. PUB. : Kartofel', 1958, No.1, 23-25

ABSTRACT : The author reports that the method of summer plantings of potato with the purpose of combating degenerative diseases under conditions of the Orlovsk oblast' did not justify itself. The method of tuber indexing can not always be utilized by experimental stations due to the absence of hothouses. The author considers a more expedient and convenient method for the exposure of virus-infected potato tubers, the method of "a single tuber" under which the tuber

CARD : 1/2

AB4009940

are thus two equations of continuity involved, in addition to the hydrodynamic equation of motion and the enthalpy equation. Sufficiently far down stream from the injection point the pressure can be considered constant, and the equations reduce to the corresponding equations for an incompressible fluid. The velocity and enthalpy profiles in the turbulent jet are assumed to be those derived by G.I.Taylor (Proc Roy.Soc.,A135,685,1932), and appropriate assumptions are introduced concerning the turbulent viscosity, heat conductivity, and diffusion coefficients, and the shape of the jet. On the basis of these assumptions the equations are integrated and expressions are obtained for the stagnation temperature. The values of ten definite integrals that occur as coefficients in the result are tabulated. Numerical values are calculated for the case of water injected into a Mach 2 air stream, and the results are presented graphically. When the initial temperature of the water and the stagnation temperature of the original air stream are both 10°C, the stagnation temperature on the axis of the jet falls below 0°C, so ice would form on a stationary object located in the jet. The theoretical conclusions were tested by experiments that are not described in detail. The experiments are said to show a somewhat greater cooling effect than calculated, but to be otherwise in satisfactory agreement with the theory. "In conclusion, the author thanks I.A.Charnyĭ for advice and guidance in the work, and T.A.Pekina for performing the computations." Orig.

2/3
Card

AP4009940

art.has: 43 formulas, 4 figures and 1 table.

ASSOCIATION: Moskovskiy institut neftekhimicheskoy i gazovoy promy*shlennosti im. I.M.Gubkin (Moscow Institute of the Petrochemical and Gas Industry)

SUBMITTED: 14Jun62 DATE ACQ: 10Feb64 ENCL: 00

SUB CODE: PH NR REF.SOV: 004 OTHER: 003

3/3
Card

YENTOV, V.M.; KALASHNIKOV, V.N.; RAYSKIY, Yu.D.

Vortex tube operating on natural gas. Gaz. prom. 9 no.4:34-39 '64. (MIRA 17:8)

KALASHNIKOV, V.N.

Solving some gravity prospecting problems by means of chance functions. Trudy MINKHiGP no.25:380-393 '59. (MIRA 15:5)
(Gravity prospecting)

KALASHNIKOV,V.N. (Moscow)

"On velocity and temperature distribution in rotational body wake"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

L 49730-65 EWT(l)/EWP(m)/EWA(d)/FCS(k)/EWA(l) Pd-1

UR/0373/65/000/001/0024/0028

TITLE: On a train behind a rotating body

SOURCE: AN SSSR. Izvestiya. Mekhanika, no. 1, 1965, 24-28

TOPIC TAGS: boundary layer, viscous fluid, velocity

obtained

$$U\frac{\partial u'}{\partial x} = \nu\left(\frac{\partial^2 u'}{\partial r^2} + \frac{1}{r}\frac{\partial u'}{\partial r}\right) - \frac{1}{\rho}\frac{\partial p'}{\partial x}, \qquad U\frac{\partial w}{\partial x} = \nu\left(\frac{\partial^2 w}{\partial r^2} + \frac{1}{r}\frac{\partial w}{\partial r} - \frac{w}{r^2}\right), \qquad \frac{\partial (ru)}{\partial x} + \frac{\partial (rv)}{\partial r} = 0$$

$$U\frac{\partial v'}{\partial x} = \frac{1}{\rho r}\left(\frac{\partial^2 v'}{\partial r^2} + \frac{1}{r}\frac{\partial v'}{\partial r}\right) + \frac{U}{\rho}\frac{\partial p'}{\partial x} + \nu\left(\frac{\partial w}{\partial r} - \frac{w}{r}\right)^2;$$

Card 1/3

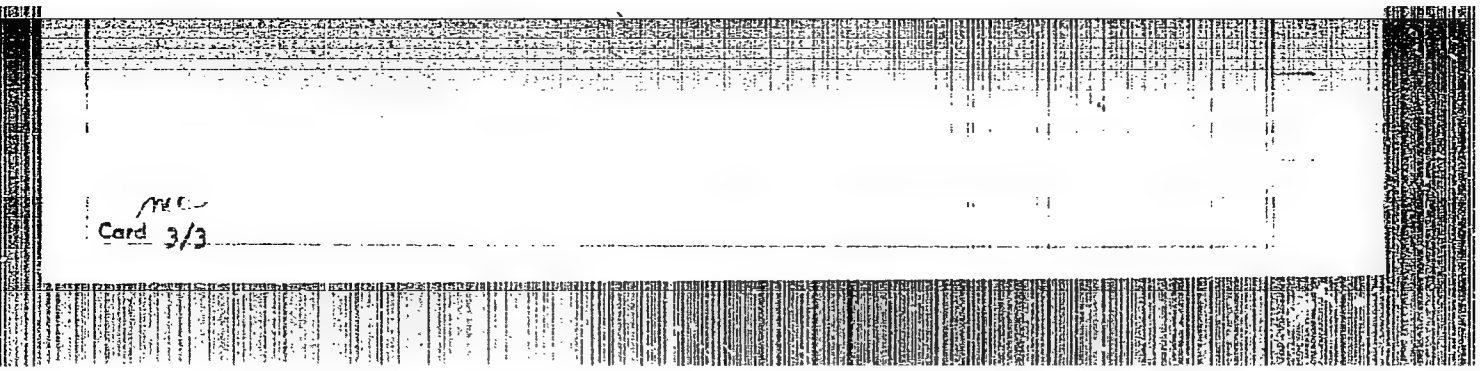
which are supplemented by two momentum conservation and one energy conservation [illegible] is integrated immediately to yield

and the expression for the pressure gives

$$\frac{p'}{p} = -\frac{A_1'}{x_1^2}\exp\frac{-r^2}{2x_1}$$

L 49790-65
ACCESSION NR: AP5010182

"The author thanks E. L. Galperin for reviewing the work." Orig. art. has: 1



L 7064-66

ACC NR: AP5027287

size of the polymer was of the order of 10^{-2} cm. This particle diameter is just sufficient to explain the experimental results of G. I. Barenblatt et al (see above) on the assumption that the observed decrease in turbulence is due to the destruction of vortices in the liquid by the particles of the additive. The authors thank V. A. Gorodtsov and V. F. Myasnikov for their criticism, Ye. A. Ryakotin for construction of the experimental installation, and V. A. Avseyenko, S. B. Gershchenko, Z. P. Titov, and A. G. Taypkin for their participation in the experimental measurements. Orig. art. has: 1 table.

SUB CODE: GC/ SUBM DATE: 26Jul65/ ORIG REF: 004/ OTH REF: 004

Card 2/2

ZYRYANOV, P.S.; KALASHNIKOV, V.P.

Quantum theory of the dielectric permeability tensor for an electron plasma in a magnetic field. Zhur.eksp.i teor.fiz. 41 no.4:1119-1124 O '61. (MIRA 14:10)

1. Ural'skiy politekhnicheskiy institut.
(Quantum theory) (Plasma (Ionized gases)--Electric properties) (Magnetic field)

ALEKSEYENKO, V.I.; KALASHNIKOV, V.P.; KOLOSOVA, G.I.; MEL'NIK, Ye.M.

Plasticizers for the plastic leather "M". Kozh.-obuv.prom. 2 no.2:16-20 F '60. (MIRA 13:5)
(Plasticizers) (Leather, Artificial)

SHILKO, N.A., dotsent; FURLET, A.A., assistent; KALASHNIKOV, V.P., student VI kursa

Physiological condition of the uterus in women in early stages of the puerperium. Akush.i gin. 37 no.2:39-44 F '61. (MIRA 14:3)

1. Iz kafedry akusherstva i ginekologii (zav. - N.A. Shilko) pediatricheskogo fakul'teta Krymskogo meditsinskogo instituta.
(UTERUS) (PUERPERIUM)

KALASHNIKOV, V.P.

Combustion of high-viscosity fuel oils with the VNII-NP-102 additive. Biul.tekh.-ekon.inform. no.1:5-6 '60.
(MIRA 13:5)

(Petroleum as fuel)

S/081/62/000/009/058/075
B166/B144

Production of sulfonate ...

A detergent and dispersive additive, NF -102 (NG-102), was produced as a concentrate of Ca sulfonate, based on sulfurized AS-9,5 oil produced by the Novokuybyshev NPZ (14% by weight SO_3 to oil). Tests of the additive, carried out under laboratory and service conditions, established its high detergent and dispersive properties and showed the necessity of combining it with an efficient antioxidant. The method of sulfurizing oils with SO_3 in liquid SO_2 to obtain oil-soluble sulfonates is recommended for wide introduction into industry. [Abstracter's note: Complete translation.]

Card 2/2

S/081/62/000/020/025/040
B168/B101

An additive for oils based on ...

under intense agitation; the temperature was held at 135-150°C, and the reaction time was 2-3 hr. The resulting sulfurated product was held for 8 hr at 150-160°C after which it was washed in a column, at first with a solution of Na_2S and then with NaOH. After passing the copper-plate test the product was charged into a vacuum column and the hydrocarbons which had not taken part in the reaction were distilled off from it at a residual pressure of 5-10 mm Hg; the product was subsequently taken to an ultracentrifuge. The yield of additive was 25-30% of the raw material. Comparative tests on the additive NG-103 showed that as regards antiwear properties it is not inferior to ЭЗ-5 (EZ-5), OT-1 (OT-1) or ЛЗ/9 (LZ/9) which are made from scarce raw materials, and that it has advantages over them (cheap source material, simple production method, no unpleasant odor). The antioxydant additive was produced from a 75-250°C cracked kerosine fraction with a molecular weight of 198 and a Francis bromine number of 40. In order to produce a stable oil-soluble additive the olefinic hydrocarbons of the cracked stock were first polymerized in the presence of 2 wt.% $AlCl_3$ (on raw material) at 60°C. The mixture obtained

Card 2/3

S/081/62/000/020/025/040
B168/B101

An additive for oils based on ...

was heated to 100°C and received gradual additions of P_2S_5 (15 wt.% on raw material) with agitation. Upon completion of phosphorosulfuration the temperature of the mixture was raised to 140°C and held there for 7-8 hr. The product was then treated with 5% H_2SO_4 and washed with water. The hydrocarbons which had not undergone reaction were distilled off from the purified product at a pressure of 5-6 mm Hg. The acid additive (NG-105) was neutralized with CaO (NG-105b) or ZnO (NG-105a) and was centrifugalized. The additives so produced were dark brown in colour and had the usual odor of cracked stock; in a thin film they were transparent. The additive yield is 25% of the initial cracked stock. [Abstracter's note: Complete translation.]

Card 3/3

KREYN, S.E.; KALASHNIKOV, V.P.; SHEKHTER, Yu.N.; YEVSTRATOVA, N.I.; DOL'BERG, A.L.

Production of clear sulfonate additives. Khim.i tekh.topl.i masel 7 no.2:19-24 F '62. (MIRA 15:1)

1. Moskovskiy zavod "Neftegaz".
(Lubrication and lubricants—Additives)

SHEKHTER, Yu.N.; KALASHNIKOV, V.P.; GORYACHEVA, V.I.

Nitration of mineral oils. Khim.i tekh.topl. i masel 7 no.11:40-45 N '62. (MIRA 15:12)

1. Moskovskiy zavod "Neftegaz."
(Mineral oils) (Nitration)

43551
S/126/62/014/005/002/015
E031/E413

AUTHOR: Kalashnikov, V.P.

TITLE: On the collective description of the conductivity electrons of metals in external fields

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.5, 1962, 646-651

TEXT: The Hartree-Fock equation is studied without any assumptions about the smallness of the energy of exchange interaction. The linearized form of the equation in the space of the quantum numbers n, n' is Laplace transformed and this permits the determination of the fundamental part of the exchange energy. A dispersion relation for the collective oscillations is constructed. In quantizing external fields there is a finite component in the motion of quasi-particles. The static exchange matrix is non-diagonal. For Bloch electrons in the initial state the exchange relation exists only between states with different zone indices. Dispersion relations for this case and for electrons in strong constant magnetic fields are given. The exchange renormalization determines precisely that part of the

Card 1/2

On the collective ...

S/126/62/014/005/002/015
E031/E413

exchange energy which is not covered by perturbation theory.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals AS USSR)

SUBMITTED: June 21, 1962

Card 2/2

KALASHNIKOV, V.P.

Paramagnetic resonance absorption in metals. Fiz.met.i metalloved. 14 no.5:652-659 N '62. (MIRA 15:12)

1. Institut fiziki metallov AN SSSR.
(Paramagnetic resonance and relaxation)

h1701
S/032/62/028/011/008/015
B104/B102

11.9400

AUTHORS: Sinitsyn, V. V., Kalashnikov, V. P., Baybakova, L. L., Smolokotina, Z. G. and Chukhrova, A. V.

TITLE: Method of estimating the oxidizability of lubricating greases

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 11, 1962, 1352 - 1354

TEXT: Following thorough consideration of the optimum quantity of grease whose oxidizability is to be determined, its optimum temperature, and optimum oxidation time, the following procedure is suggested using results published in Soviet and non-Soviet papers (F. T. Wright, H. A. Mills, Proc. ASTM, 38, II (1938)): 1.7 - 1.9 g of grease is put into a small cup of electrolytic copper, or a slice of grease (1 ± 0.05 mm thick, 50 mm diameter) is applied to a glass plate by means of a template. The small cup or the glass plate are then enclosed in a Petri cup and are kept in a thermostat at a certain temperature for 5 - 200 hrs. Before and after the test, the acid number of the grease is determined according to ГОСТ 6707-57 (GOST 6707-57). The index of oxidation of the acid is defined as being the difference between the acid numbers before and after the test. Temper-

Card 1/2

ature and time of the experiment are fixed according to the mode of application of the grease. The high stability of ЦИАТИМ-201 (TsIATIM-201), ЦИАТИМ-202 (TsIATIM-202), and 1-Б3 (1-L3) is due to the content of diphenyls, that of ЦИАТИМ -203 (TsIATIM-203) and ЯНЗ-2 (YaNZ-2) to the content of sulfurous compounds, and that of ЦИАТИМ-203 (TsIATIM-203) is due also to the additional content of triphenyl phosphate. ЦИАТИМ-221 (TsIATIM-221) practically does not oxidize, because of the high stability of polysiloxanes. There are 2 figures and 1 table.

ASSOCIATION: Moskovskiy zavod "Neftegaz" (Moscow "Neftegaz" Plant)

SHEKHTER, Yu.N.; KALASHNIKOV, V.P.; YEVSTRATOVA, N.Ye.; LYAKHOVICH, R.S.; NIKOLAYEVA, V.M.

Self-emulsifying oils based on water and oil soluble sulfonates. Khim. i tekh. topl. i masel 8 no.4:32-34 Ap '63. (MIRA 16:6)

1. Moskovskiy zavod "Neftegaz".
(Emulsifying agents) (Sulfonic acids)

KALASHNIKOV, V.P.

Volt-ampere characteristics of semimetals in crossing electric and magnetic fields. Fiz. met. i metalloved. 16 no.1:19-23 Jl '63. (MIRA 16:9)

1. Institut fiziki metallov AN SSSR.
(Metalloids—Electric properties)
(Electric fields)
(Magnetic fields)

ACCESSION NR: AP4000618 S/0126/63/016/004/0497/0500

AUTHOR: Kalashnikov, V. P.

TITLE: Phonon emission intensity of conduction electrons in a region of acoustic instability

SOURCE: Fizika metallov i metallovedeniye, v. 16, no. 4, 1963, 497-500

TOPIC TAGS: conduction electron phonon emission, phonon emission, acoustic instability, anisotropic emission, isotropic relaxation emission, phonon emission intensity, electron phonon emission, Kogan formula, conduction electron, emission intensity

ABSTRACT: An expression has been derived for the phonon emission intensity caused by the drift and heating of conducting electrons. It is assumed that the electrons and the phonons can be represented by means of an equilibrium distribution in their ground state with different temperatures $T>T_0$. The V. P. Kalashnikov (FMM 1963, 16,1) formula Number 2 has been used for the case of isotropic relaxation emission, and a general expression is derived for the emission intensity $P(T,E)$. The equation is then integrated for the case of a Maxwellian distribution corresponding to the quantum limit $h\omega_0 >> T$. The resulting equation yields the Sh. M. Kogan term

Card 1/2

ACCESSION NR: AP4000618

(FTT, 1962, 4, No. 9, 2474) plus two more. This formula shows that for $E > E_{cr} = sH/c$ the phonon emission intensity increases sharply because of the dominant anisotropic effects in the direction of charge carrier drift, and the second term becomes an order of magnitude larger than the first term for $\beta > 1$, $T \sim 2K$, and H on the order of tens of kilo-oersteds. "The author thanks V. Kopy*tov for his help in the calculations." Orig. art. has: 8 formulas.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals AN SSSR)

SUBMITTED: 07Feb63	DATE ACQ: 27Nov63	ENCL: 00
SUB CODE: PH	NO REF SOV: 003	OTHER: 000

Card 2/2

L 19226-65 EWT(m)/EPF(c)/T Pr-4 RSD/ASD(m)-3/ASD(p)-3 RM
ACCESSION NR: AP4049851 S/0318/64/000/002/0007/0010

AUTHOR: Kalashnikov, V. P.; Shekhter, Yu. N.; Dol'berg, A. L.

TITLE: Installation for the nitration of petroleum products

SOURCE: Neftepererabotka i neftekhimiya, no. 2, 1964, 7-10

TOPIC TAGS: petroleum nitration, protective lubricant, oil inhibitor, corrosion inhibitor/ lubricant NG-204, oil additive NG-106

ABSTRACT: The authors propose a method of manufacturing a low-solubility, nitrated corrosion inhibitor by nitrating oils from selective refining of eastern crudes (AS-6,

L 19726-65
ACCESSION NR: AP4049871

metals. In addition, NG-106, as tested by the Neftegaz plant, is effective as a dispersing [illegible] as an oil additive. Production yields are given for

Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Moskovskiy zavod "Neftegaz" (Moscow "Neftegaz" Plant)

SUBMITTED: [illegible] ENCL: 00 SUB CODE: FP

NO REF SOV: 007 OTHER: 002

Card 2/2

L 18854-65 EWT(1)/EWT(m)/T/EWP(t)/EWP(b) IJP(c)/RAEM(a)/ASD(a)-5/IFWL/ESD(t)/
AFETR/ASD(m)-2/SSD/ESD(gs) JD

ACCESSION NR: AP4041[illegible] S/0181/64/006/008/2435/2440

AUTHOR: Kalashnikov, V. P. 15

TITLE: Nonlinear galvanomagnetic effects in semiconductors and semimetals under conditions of strong mutual drag of electrons and phonons

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2435-2440

TOPIC TAGS: galvanomagnetic effect, electron phonon interaction, electron scattering, Hall effect, electric conductivity

ABSTRACT: Nonlinear galvanomagnetic effects in a degenerate sample in magnetic fields are considered [illegible]

tion when it approaches the velocity of sound.

Card 1/3

L 18851-65

ACCESSION NR AP4041216

drift velocity of phonons. This saturation of the phonon velocity gives rise to a stronger resistance of phonons to electron drift. [illegible] are scattered more strongly. At this point the dis-

negative electron current [illegible] the electric field is assumed
to be applied along the y-axis] increases sharply while the Hall
current begins to rise more slowly than in the ohmic region. If
phonon heating is neglected, both currents are shown to be propor-
tional to the electric field, both below and above the point of
phonon-velocity saturation, but for each current the slopes are
different below and above this point. The conductivity on the
[illegible]
and H. H. Paul's [illegible] discussions of the work [illegible]

2

ACCESSION NR: AP4043366

[illegible] metallov AN SSSR, Sverdlovsk (Institute

SUBMITTED: [illegible]

ENCL: 1

SUB CODE: SS NR REF SOV: 001 OTHER: 002

Card 3/3

ACCESSION NR: AP4043371 S/0181/64/006/008/2457/2459

AUTHOR: Kalashnikov, V. P.

TITLE: On the polarization of nuclear spins of a semiconductor with direct current

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2457-2459

TOPIC TAGS: phonon, electron temperature, kinetic equation, relaxation, nuclear spin polarization, indium antimonide, paramagnetic relaxation, semiconductor

ABSTRACT: The author considers paramagnetic relaxation of electrons and polarization of nuclei in a degenerate semiconductor at low temperatures with allowance for the fact that the phonons are not in equilibrium. Unlike earlier investigations, account is taken not only of the difference between the kinetic temperature of the electrons and the lattice temperature, but also of the existence of

Card 1/2

TRANSLATION CHECK SHEET

ACCESSION NR: AP4028992 S/0126/64/017/003/0343/0349

AUTHOR: Kalashnikov, V. P.; Pomortsev, R. V.

TITLE: On the nonlinear theory of galvanomagnetic phenomena in semiconductors

SOURCE: Fizika metallov i metallovedeniye, vol. 17, no. 3, 1964, 343-349

TOPIC TAGS: nonlinear theory, galvanomagnetic phenomena, semiconductor, nonlinearity, galvanomagnetic coefficient, drift dissipative current

ABSTRACT: The authors derived nonlinear expressions according to an electric field for the cross sectional dissipation current and the strength of phonon radiation in a semiconductor, located in crossed electrical and magnetic fields. It is shown that the nonlinearity of galvanomagnetic coefficients is associated with the heating of conductivity electrons, as well as with the increase in the velocity of their orderly drift. Classical and quantum limits are examined. The authors limited their examination to the impure, non-piezoelectric semiconductors at moderate temperatures so that the phonon scattering would be overcome and secondly it would be possible to disregard the nonequilibrium of the phonons. The authors show that: one type of nonlinearity is associated with the chaotic movement of electrons and is described by the dependence of the effective temperature on the electrical field, the second

Card 1/2

ACCESSION NR: AP4028992

type is associated with the orderly drift and is described by the dependence of the drift velocity on the electric field. The authors also examine the elastic as well as nonelastic collisions in order to calculate the current for the linear theory of transfer phenomena in strong magnetic fields. The result of the mathematical arguments differs from the curve produced by R. F. Kazarinov and V. G. Skobov (ZhETF, 1962, v. 42, p. 1047; 1962, v. 44, p. 1368) in that the decreasing sector of volt-ampere characteristics in the authors' formulas precede the intense growth of the current associated with drift nonlinearity. At sufficiently low temperatures and high mach numbers, the authors' formula is inapplicable. In addition, it is obviously impossible to disregard the nonequilibrium of the phonons when $\beta \gg 1$. The authors express their gratitude to C. S. Zy*ryanov and G. G. Taluts for their evaluation of the work. Orig. art. has: 20 formulas and 1 figure

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of the Physics of Metals, AN SSSR)

SUBMITTED: 10Jly63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: PH, GE NO REF SOV: 004 OTHER: 004

Card 2/2

S/0126/64/017/005/0651/0654

ACCESSION NR: AP4039592

AUTHOR: Kalashnikov, V. P.

TITLE: Quantum oscillations of thermomagnetic coefficients

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 5, 1964, 651-654

TOPIC TAGS: thermomagnetic electron effect, thermal diffusion, thermal emf, Nernst Ettingshausen effect, quantum oscillation

ABSTRACT: The quantum oscillations of the coefficients of thermal diffusion, thermal emf, and Nernst effect in a strong magnetic field under isothermal conditions are discussed by computing the quantum corrections $\Delta\beta_{ik}$ to the thermal diffusion tensor β_{ik} in the region $T \ll \zeta, \hbar\omega_0 \lesssim \zeta$, where T is the electron temperature in energy units, ζ is the chemical potential, and $\omega_0 = \frac{eH}{mc}$. In a magnetic field (OOH) and temperature gradient $\left(0\ \frac{\partial T}{\partial y}\ 0\right)$, the component $\beta_{yy} = \beta$ is given by

$$\beta = \beta_0 + \Delta\beta_1 + \Delta\beta_2;$$

$$\Delta\beta_1 = \beta_0 \cdot \frac{3}{16}\left\{\frac{5}{3}\varepsilon_0^{5/2} - 2\varepsilon_0(\varepsilon + 1/2)^{3/2} + \frac{1}{3}\left(\varepsilon + \frac{1}{2}\right)^{5/2}\right\}(-\varepsilon^{-3/2});$$

Card 1/3

ACCESSION NR: AP4039592

The quantum corrections to the electrocconductivity tensor σ_{ik} have been considered in detail elsewhere by E. Adams and T. Holstein (Phys. Chem. Sol., 1959, 10, 254) and I. M. Lifshits and A. M. Kosevich (ZhETF, 1957, 33, 88). The author thanks P. S. Zyryanov for his interest in the work. Orig. art. has: 45 equations.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals, AN SSSR)

SUBMITTED: 18Oct63 DATE ACQ: 19Jun64 ENCL: 00

SUB CODE: SS, GP NO REF SOV: 003 OTHER: 001

Card 3/3

ZYRYANOV, P.S.; KALASHNIKOV, V.P.

Quantum theory of thermomagnetic phenomena in metals and semiconductors. Fiz. met. i metalloved. 18 no.2:166-170 Ag '64. (MIRA 18:8)

1. Institut fiziki metallov AN SSSR.

L 15747-65 EWT(l)/EWG(k)/EWT(m)/T/EWP(t)/ETI(b)/EWA(h) Pz-6 Pab-10 IJP(c)
ESD(gs)/AEDS(a)/SSD(a)-2/AFETR JD/AT
ACCESSION NR: AT4042803 S/0126/64/018/001/0003/0009

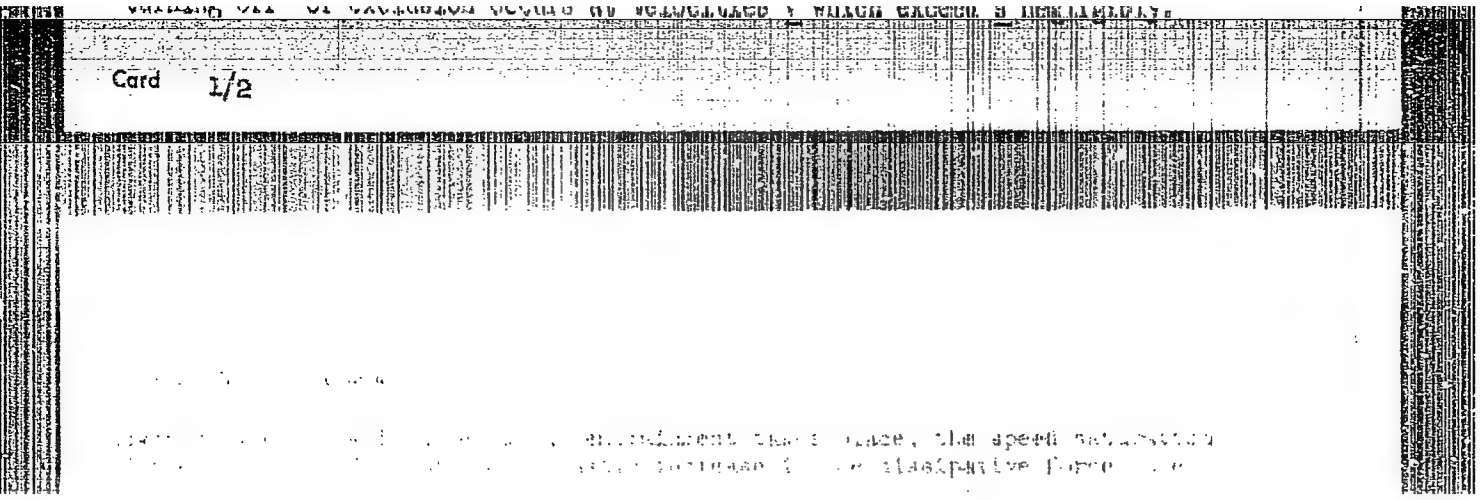
AUTHOR: Gantmakher, V. F.

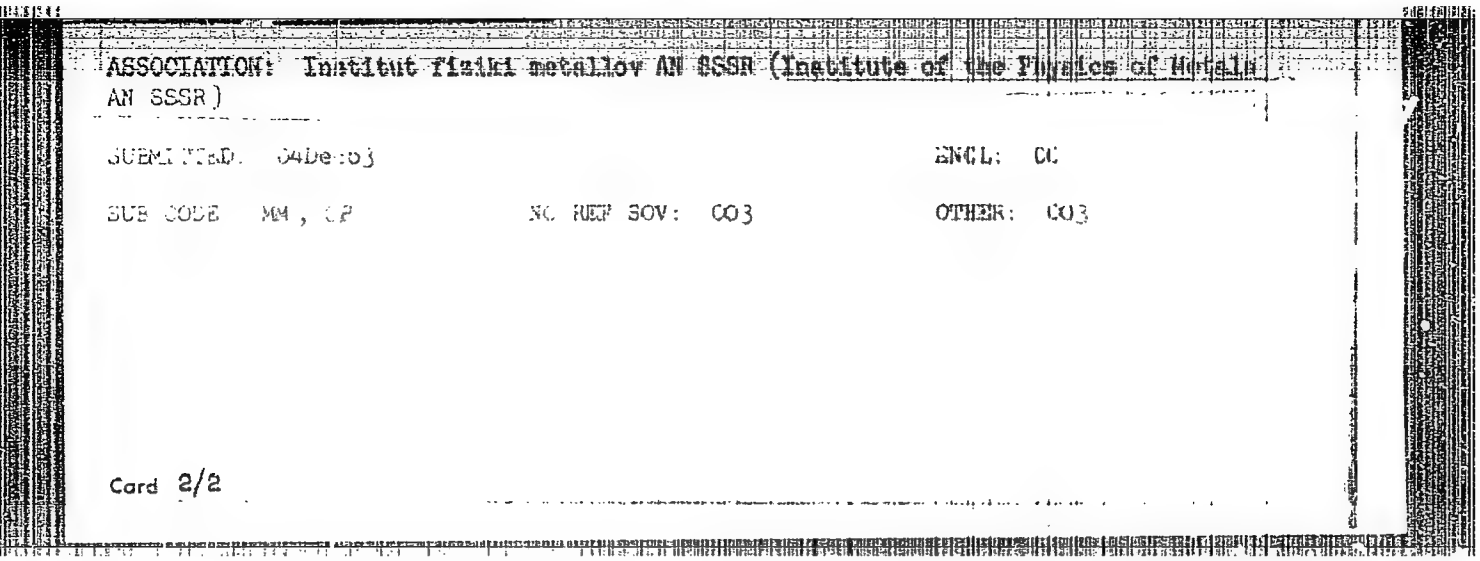
TITLE: Specifics of the phonon entrainment under conditions of supersonic electron drift

SOURCE: Fizika metallov i metallovedeniye, v. 18, no. 1, 1964, 3-9

TOPIC TAGS: electron phonon collision, entrainment, drift, mean energy, Joule law, [illegible] current, supersonic velocity

ABSTRACT: Referring to a preceding paper on dissipation energy and irradiation capacity in the approximation of effective temperatures, the author shows that the macroscopic drift of phonons which interact with the stationary electron flow could





ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of the Physics of Metals AN SSSR)

SUBMITTED: 04Dec63 ENCL: 00

SUB CODE: MM, GP NO REF SOV: 003 OTHER: 003

Card 2/2

KALASHNIKOV, V.P.

Possible explanation of the anomalous behavior of the magnetoresistance of bismuth at low temperatures. Fiz. met. i metalloved. 18 no.2:171-177 Ag '64. (MIRA 18:8)

1. Institut fiziki metallov AN SSSR.

L 40959-65 EWT(1) IJP(c)

ACCESSION NR: AP5006325 S/0126/65/019/002/0169/0172

AUTHOR: Kalashnikov, V. P.

TITLE: Adiabatic thermomagnetic effects in a quantizing magnetic field

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 2, 1965, 169-172

TOPIC TAGS: quantum field, thermomagnetic electronic effect, thermoelectromotive power, thermal conductivity

ABSTRACT: Expressions are derived for adiabatic adjustment of the basic thermomagnetic factors in a quantized field:

$$\alpha'_{\parallel} - \alpha_{\parallel} = -\frac{9T}{4e^2}\sigma_{yy}[\lambda(H)+\varkappa_\phi]^{-1};$$
$$\alpha'_{\perp} - \alpha_{\perp} = \frac{3}{2}\frac{T}{e^2}\sigma_{xy}[\lambda(H)+\varkappa_\phi]^{-1}; \quad (9)$$
$$\lambda'(H) - \lambda(H) = \lambda(H)T^2H^{-2}[\lambda(H)+\varkappa_\phi]^{-2}$$

[illegible] and

$$n'_{\parallel} - n_{\parallel} = -\sigma_{yy}\frac{\pi^2T^2}{e^2\zeta'}[\lambda(H)+\varkappa_\phi]^{-1};$$
$$n'_{\perp} - n_{\perp} = \sigma_{xy}\frac{\pi^2T^2}{6e^2\zeta'}[\lambda(H)+\varkappa_\phi]^{-1}, \quad (10)$$
$$\lambda'(H) - \lambda(H) = \lambda(H)T^2H^{-2}[\lambda(H)+\varkappa_\phi]^{-2}$$

Card 1/2

L 40959-65

ACCESSION NR: AP5006325

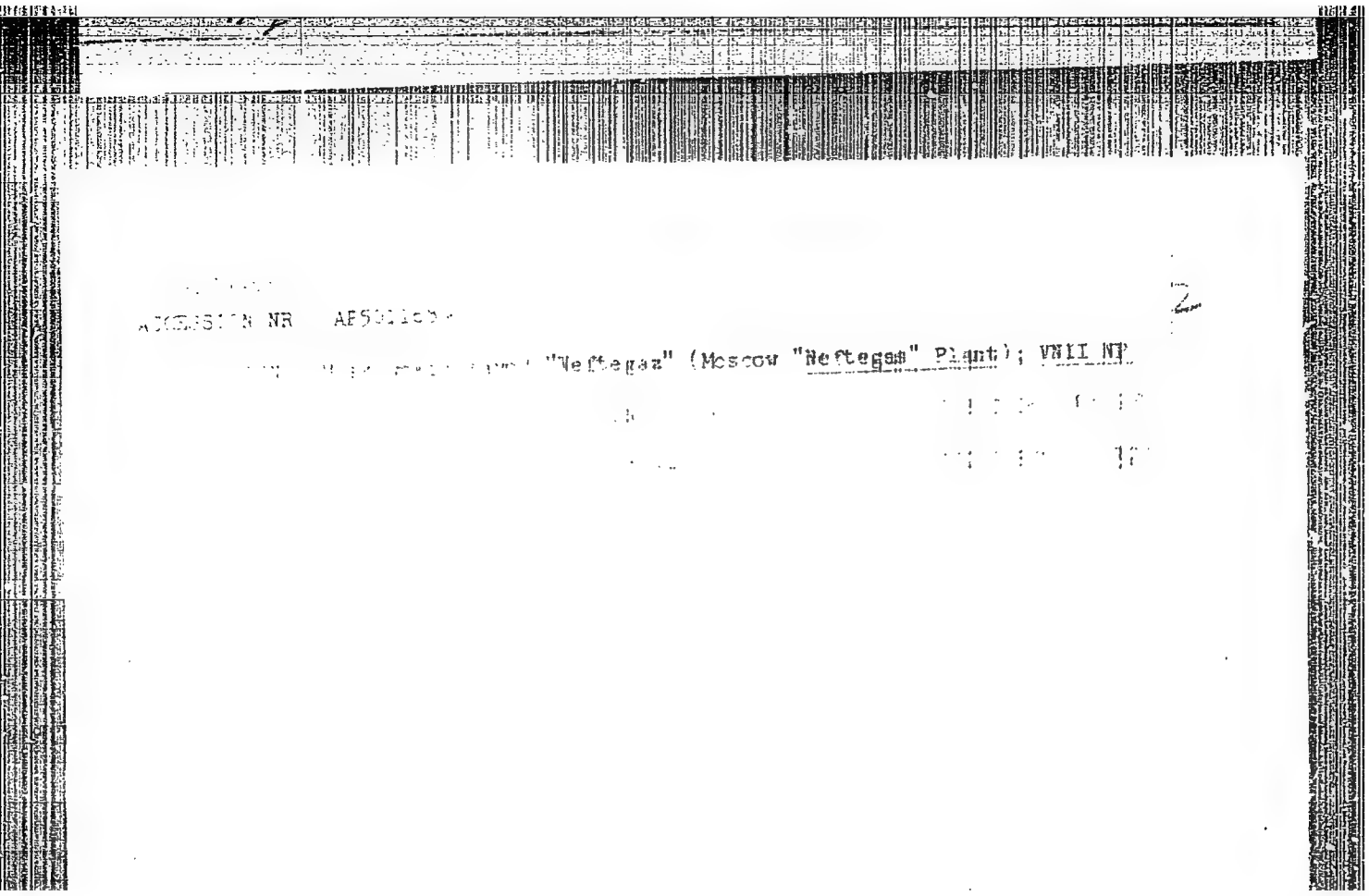
for the case of total degeneration. The difference between the isothermic and adiabatic coefficients increases as the ratio of the electron part of the thermal [illegible] increases. When this ratio is very large, the [illegible] of practical importance when $\omega\tau \gg 1$ (τ is the mean free time of a conduction electron), the adiabatic adjustments have the relationship to the magnetic field shown in tables 1-8 of the Enclosure. Orig. art. has: 10 formulas and 2 tables.

AM 5558J

SUBMITTED: 06Jul64 ENCL: 03 SUB CODE: EM

NO REF SOV: 002 OTHER: 001

Card 2/5



ACCESSION NR AP5011692

"Neftegaz" (Moscow "Neftegas" Plant); VNII NP

L 5407-66 EWT(1)/T/EWA(h) DIAAP/LJP(c) AT

ACC NR: AP5027390 SOURCE CODE: UR/0181/65/007/011/3180/3187

AUTHOR: Kalashnikov, V. P.

ORG: Institute of Physics of Metals, AN SSSR, Sverdlovsk (Institut fiziki metallov AN SSSR)

TITLE: Dc polarization of nuclear spins in a semiconductor

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3180-3187

TOPIC TAGS: nuclear spin, particle polarization, semiconductor theory

ABSTRACT: Formulas are derived for polarization of nuclear spins in a semiconductor for the case of interaction with hot electrons in strong electric and magnetic fields. Various limiting cases are considered. Orig. art. has: 31 formulas.

SUB CODE: NP,SS/ SUBM DATE: 05Apr65/ ORIG REF: 002/ OTH REF: 006

BVK

Card 1/1

KALASHNIKOV, V.P. [Kalashnykov, V.P.]

Theory of transfer phenomena in nonequilibrium systems of charged particles in a strong magnetic field. Ukr.fiz.zhur. 10 no.10: 1071-1076 O '65.

(MIRA 19:1)

1. Institut fiziki metallov AN SSSR, Sverdlovsk. Submitted December 10, 1964.

L 2939-66 EWT(m)/EPF(c)/EWP(j)/T/EWP(t)/EWP(b) JD/HW/NB/RM

ACCESSION NR: AP5024386 UR/0286/65/000/015/0068/0068
620.197.3

AUTHOR: Shekhter, Yu. N.; Vaynshtok, V. V.; Dol'berg, A. L.; Kalashnikov, V. P.; Poddubnyy, V. N.; Goryacheva, V. I.; Rozvadovskaya, I. N.; Levitin, M. K.

TITLE: Preparative method for corrosion inhibitors for metals. Class 23, No. 173366

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 68

TOPIC TAGS: corrosion inhibitor

ABSTRACT: An Author Certificate has been issued for a preparative method for corrosion inhibitors for metals which involves petroleum product nitration. To increase the inhibitor effectiveness, to lower its cost, and to widen the range of available inhibitors, petrolatum, or oxidized petrolatum, or pyro polymers, or a mixture thereof are nitrated. [SM]

ASSOCIATION: none

SUBMITTED: 09Mar63 ENCL: 00 SUB CODE: MM
NO REF SOV: 000 OTHER: 000 ATD PRESS: 4110
Card 1/1 PC

L 1357-66 EWT(1)/EPA(w)-2/EWA(m)-2 IUP(c) AT

ACCESSION NR: AP5021940

UR/0126/65/020/002/0295/0297
539.293:537.3+538.01

AUTHOR: Kalashnikov, V. P. 49, 55

TITLE: Nuclear relaxation via "hot" conduction electrons 21, 44, 55

SOURCE: Fizika metallov i metallovedeniya, v. 20, no. 2, 1965, 295-297

TOPIC TAGS: nuclear spin, conduction electron, relaxation, acoustic phonon, electric field, magnetic field, electric conductivity, electron energy, current density

ABSTRACT: The interaction between nuclear spins and the nonequilibrium system of conduction electrons of a semiconductor or metal in a strong magnetic field may lead to a marked increase in nuclear magnetization. In this connection, by deriving an equation of a system of electrons and nuclei present in strong crossed electric (OEO) and magnetic (OOH) fields, the author shows that such an increase in magnetization is accompanied by a pronounced decrease in the time $\tau_{en}(E)$ of electron-nuclear relaxation. Equations are derived for cases where electron energy is scattered on acoustic phonons and on either neutral or ionized impurities. It

Card 1/2

Card 2/2

KALASHNIKOV, V.P.

Theory of the transfer phenomena in nonequilibrium electron and phonon systems in a strong magnetic field. Fiz.-met. i metalloved. 20 no.5:781-782 N '65. (MIRA 18:12)

1. Institut fiziki metallov AN SSSR. Submitted December 3, 1964.

SHEKHTER, Yu.N.; YEVSTRATOVA, N.I.; KALASHNIKOV, V.P.; NIKOLAYEVA, V.M.; YERMILOV, A.S.

Lubricating and cooling fluids with molybdenum disulfide. Stan i instr. 36 no. 12:13-15 D '65 (MIRA 19:1)

L 36252-66

ACC NR: AP6019269 SOURCE CODE: UR/0030/66/015/002/0473/0485

60

B

AUTHOR: Kalashnikov, V. P.

ORG: Institute of Metal Physics, Academy of Sciences of the USSR, Sverdlovsk

19

TITLE: Nuclear polarization by hot-carrier flow in semiconductors

SOURCE: Physica status solidi, v. 15, no. 2, 1966, 473-485

TOPIC TAGS: nuclear polarization, semiconductor, [redacted] magnetic field, electric field, spin lattice relaxation, [redacted], nuclear magnetic moment, conduction electron, current density

ABSTRACT: The nuclear polarization resulting from the interaction of the nuclei with a nonequilibrium, steady-state distribution of hot-conduction electrons generated by cross static magnetic and strong electric fields is investigated theoretically. The effect of a strong electric field on the spin-lattice relaxation times of the conduction electrons and the relaxation time of the nuclei by hyperfine interaction with hot carriers are considered for various types of semiconductors. Formulas for field-enhanced nuclear magnetization and for

Card 1/2

L 44567-66 EWT(1) SCTB DD

ACC NR: AP6030593 (A) SOURCE CODE: UR/0413/66/000/016/0076/0076

INVENTOR: Maklyukov, M. I.; Kalashnikov, V. P.; Zaykin, M. G.; Baburin, V. A.; Gavrikov, Yu. N.; Utyamyshev, R. I.

36
B

ORG: none

TITLE: Multichannel device for recording human physiological functions. Class 30, No. 185005

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 76

TOPIC TAGS: human physiology, body temperature, skin galvanic reaction, respiratory system, biometrics, biotelemetry

ABSTRACT: An Author Certificate has been issued for a device used to record human physiological functions. Its components include amplifiers of biopotentials, high- and low-frequency filters, a body and skin temperature monitor, a circuit recording respiratory rate and respiratory movements of the thorax, a circuit measuring skin galvanic reactions, and a stabilized power source. Increased operating reliability and accuracy of several simultaneous measurements are achieved by suppressing synphased interference and by assuring necessary signal amplification using cascaded low-frequency amplifiers. Some signals are fed

Card 1/2 UDC: 615.471:612.2:621.38

L 00870-67 T IJP(c) AT

ACC NR: AP6024355 SOURCE CODE: UR/0030/66/016/001/K035/K037

AUTHOR: Kalashnikov, V. P. 45 B

ORG: Institute of Metal Physics, Academy of Sciences of the USSR, Moscow

TITLE: Influence of spatial inhomogeneities on the nuclear polarization due to direct current in semiconductors 21

SOURCE: Physica status solidi, v. 16, no. 1, 1966, K35-K37

TOPIC TAGS: magnetization, conduction electron, semiconductor theory

ABSTRACT: As was found experimentally by Clark and Feher (Phys. Rev. Letters 10, 134, 1963), the steady-state nuclear magnetization induced by the flow of hot carriers in a semiconductor depends not only on the even powers of the external electric field (in accordance with the theory of the effect for homogeneous semiconductors), but also contains odd powers of E, which are important at low field strengths and may result in a change of sign of the nuclear magnetization with the reversal of the electric field. In the present paper, this phenomenon is explained by the influence of spatial inhomogeneities in the distribution of conduction electrons. After a coupled set of kinetic equations is derived for the density and magnetization of carriers from the effective Hamiltonian of carriers in crossed electric fields and neglecting spin-orbital coupling a rate equation is obtained for the total spin magnetization of the carriers, and a stationary case is considered. For the latter, the saturation parameter S determining the

Card 1/2

L 04798-67 EWT(1)/EEC(k)-2/EWP(k) IJP(c) WG/ETW

ACC NR: AP6024478 SOURCE CODE: UR/0181/66/008/007/2130/2136

AUTHOR: Kalashnikov, V. P.

ORG: Institute of Metal Physics AN SSSR, Sverdlovsk (Institut fiziki metallov AN SSSR)

52
B

TITLE: Contribution to the theory of spin-lattice relaxation of conduction electrons in a strong electric field

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2130-2136

TOPIC TAGS: conduction electron, spin lattice relaxation, electron scattering, spin relaxation, semiconductor carrier, semimetal

ABSTRACT: The author calculates the spin-relaxation times of hot electrons for different types of scattering of the electrons in semiconductors and semimetals. This is done by analyzing the magnetic relaxation of a strongly non-equilibrium system of conduction electrons in crossed magnetic and strong electric fields. The electrons are assumed scattered by phonons of different types, by impurities, and by static lattice defects as well as by nuclear spins. The results are expressed in terms of the spin-lattice relaxation times in the absence of the electric field. It is shown that the effect of Joule heating lead to a decrease in the spin-relaxation time of nondegenerate carriers with an increase of the drift velocity of their flux in the electric field. The dependence of the spin-relaxation time on the current density is

Card 1/2

L 04798-67
ACC NR: AP6024478

obtained and is used to determine the spin-relaxation mechanism in the crystal by an independent method. It is shown that heating effects greatly increase the ratio of the collision frequency with spin flip to the collision frequency without spin flip. The influence of electron runaway on the time of their spin lattice relaxation is also considered. Orig. art. has: 13 formulas and 5 tables

SUB CODE: 20/ SUBM DATE: 20Dec65/ ORIG REF: 004/ OTH REF: 003

Card 2/2 afs

ACC NR: AP6037070 SOURCE CODE: UR/0056/66/051/005/1417/1422

AUTHOR: Kalashnikov, V. P.

ORG: Institute of Physics of Metals, Academy of Sciences, SSSR (Institut fiziki metallov Akademii nauk SSSR)

TITLE: Spin-lattice relaxation of weakly inhomogeneous distributions of conduction electrons in a strong magnetic field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 5, 1966, 1417-1422

TOPIC TAGS: spin lattice relaxation, conduction electron, spin system, magnetization, physical diffusion, strong magnetic field

ABSTRACT: The author investigates the spin-lattice relaxation and the transverse diffusion of the longitudinal component of spin magnetization of the conduction electrons in a quantizing magnetic field. General expressions are obtained, in the Born approximation in the scattering, for the spin-lattice relaxation time and for the coefficient of spin diffusion. All the principal types of spin-lattice interactions which are essential for the carriers in conducting crystals are taken into account. A simple relation is derived between the spin diffusion coefficient and the dissipative part of the transverse electric conductivity coefficient for strong magnetic fields. A concrete calculation is made of the spin-lattice relaxation time for carriers interacting with magnetic impurities in the quantum limit. Orig. art. has:

Card 1/2

L 34830-66

ACC NR: AP6021804 SOURCE CODE: UR/0413/66/000/012/0072/0073

INVENTOR: Naburin, V. A.; Kalashnikov, V. P.; Utyamyshev, R. I.

ORG: none

TITLE: Device for measuring arterial blood pressure. Class 30, No. 182848

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 12, 1966, 72-73

TOPIC TAGS: arterial pressure, arterial pressure sensor, hemodynamics, human physiology

ABSTRACT: An Author Certificate has been issued for a device which measures arterial blood pressure. It consists of compressed air cylinders, a cuff with an oscillation

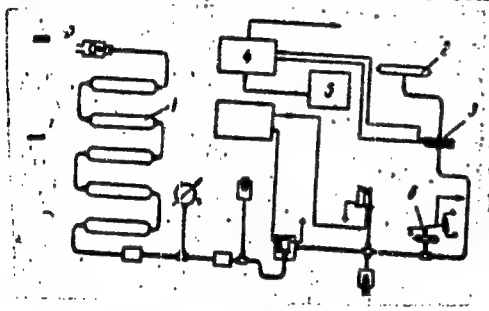


Fig. 1. Device for measuring arterial blood pressure

1 - Compressed air cylinders; 2 - cuff; 3 - oscillation sensor; 4 - amplifier; 5 - stabilized power source; 6 - pressure sensor.

Card 1/2 UDC: 615.471:612.143

L 34857-66

ACC NR: AP6014075

ordinary or oxygen-enriched air are assumed. The gas temperatures were assumed: before the channel: 2500, 2600, 2700C; after the channel: 2250, 2100C. Initial steam parameters for turbines, 240 atm, 580C. These conclusions are offered: (1) With ordinary-air preheating to 1500—2000C, the power-plant efficiency could reach 50—60% which considerably exceeds that of any other type of power plant; (2) The most important problem for materialization of such power plants is the constructing of magnetic systems with an induction of 4—6 web/m^2; (3) Methods are needed for obtaining high temperatures of the combustion products with limited air preheating. The flue loss of the ionizing agent (K_2CO_3) can appreciably offset the MHD-plant savings if the fuel is cheap; hence, the MHD plants seem to be promising for the areas of high- or medium-price fuels. Orig. art. has: 3 figures, 2 formulas, and 2 tables.

SUB CODE: 10 / SUBM DATE: 01Dec65

Card 2/2

SOV/89-5-4-4/24

AUTHORS: Kalashnikov, V. V., Titova, V. V., Sergeyev, G. Ya., Samoylov, A. G.

TITLE: On Uranium-Molybdenum Alloys in Reactor Construction (Survey) (Uran-molibdenovyye splavy v reaktorostroyenii. Obzor)

PERIODICAL: Atomnaya energiya, 1958, Vol 5, Nr 4, pp 421-431 (USSR)

ABSTRACT: The following data on uranium-molybdenum have been compiled on the basis of mainly foreign publications.

1) Phase diagrams and the general properties of alloys.
2) The mechanical properties of some U-Mo alloys (Mo content 2,2 to 12%).
3) Measurement stability of U-Mo alloys after cyclical treatment (heating - cooling). Here especially the papers by S. T. Konobeyevskiy are mentioned.
4) Radiation-stability and corrosion-stability of U-Mo alloys in water.

The following may be said about the use of U-Mo alloys as nuclear fuel:

a) compared to pure uranium, U-Mo alloys have a higher mechanical strength, better corrosion-resisting properties at

Card 1/2

higher temperatures, and high stability of measurements also after cyclical thermal treatment.

b) The alloy is especially easily worked into rods and tubes, but less well into plates.

c) The application of U-Mo alloys forcibly leads to an increase of the degree of enrichment of U^{235}.

d) U-Mo alloys can probably be used with good success for fast reactors.

There are 7 figures, 9 tables, and 18 references, 4 of which are Soviet.

SUBMITTED: June 21, 1958

KALASHNIKOV, V. V.

PHASE I BOOK EXPLOITATION SOV/6167

Zaymovskiy, Aleksandr Semenovich, Vyacheslav Vyacheslavovich Kalashnikov, and Igor' Stefanovich Golovnin

Teplovydelyayushchiye elementy atomnykh reaktorov (Fuel Elements of Atomic Reactors). Moscow, Gosatomizdat, 1962. 369 p. Errata slip inserted. 4000 copies printed.

Ed.: Ye. I. Panasenkova; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for students, scientific workers, engineers, and technicians specializing or engaged in atomic-power engineering and related fields.

COVERAGE: General requirements for the design and operation of fuel elements are presented. Particular attention is given to various fuel types, structural materials, compatibility of atomic fuel with structural materials, and of the latter with coolants. The combined thermal, mechanical, and radiative effect on fuel and materials is analyzed. General information on metals, and engineering reference data are included.

Card ~~1/5~~

AVAKOV, V.A.; KALASHNIKOV, V.V.; RAYKHEL', A.Ya.

Selecting diesels for drilling rigs. Mash. i neft. obor. (MIRA 17:5)
no.3:29-31 '64.

1. VNIIPTneftemash.

USSR/Chemistry - High pressure equipment FD-1554

Card 1/1 : Pub. 50 - 11/25

Author : Kalashnikov, Ya. A.

Title : An electrical current inlet with a continuous wire for superhigh-pressure applications

Periodical : Khim. prom., No 8, pp 491-92 (43-44), Dec 1954

Abstract : A new design of an electrical current inlet for high-pressure work is described. Three references, two USA, one USSR (since 1940). Two figures.

Institution :

Submitted :

KALASHNIKOV, Ya. A.

USSR/ Engineering - Technical physics

Card 1/1 Pub. 22 - 21/56

Authors : Vereshchagin, L.F., and Kalashnikov, Ya. A.

Title : A thermal field inside of a steel container at high pressures.

Periodical : Dok. AN SSSR 99/5, 745-748, Dec. 1954

Abstract : Experiments with steel containers having built-in heating devices are described. The experiments were intended to determine the dependence of the internal temperature of the containers on the pressure. The experiments were conducted with containers in the vertical and horizontal positions. The pressure was obtained from various gases, such as N, and Ar. Eight references: 6-USSR (1923-1950). Tables; graphs.

Institutions: The Moscow State University im. M.V. Lomonosov, The Institute of Organic Chemistry im. N.D. Zelinskiy of the Acad. of Sci of the USSR.

Presented by: Academician S.A. Kristianovich, September 1, 1954.

FD-3189

USSR/Physics - High Temperature Methods

Card 1/1 Pub. 153-19/21

Authors : Vereshchagin, L. F. and Kalashnikov, Ya. A.

Title : The question of creating high temperatures at high pressures

Periodical: Zhur. tekh. fiz., 25, No 8 (August), 1955, 1508-1517

Abstract : The authors describe experiments which were undertaken to determine how best to raise a gas or liquid under high pressure to a high temperature. The apparatus and procedures are described, and the experimental results are presented in graphical and tabular form. The authors state that the temperature falls as pressure is increased because of convection in all the cavities which are filled with gas. Therefore they built an oven in which all the gaps were eliminated by filling them in with a thermal isolating substance-fireproof concrete. They state that there should be no more confusion on the subject of maintaining high temperatures at high pressures.

Submitted : March 9, 1955

KALASHNIKOV, YA. A.

KALASHNIKOV, YA. A. -- "The Creation and Measurement of High Temperatures during the Investigation of Chemical Reactions in Highly-compressed Gases." Min Higher Education USSR, Moscow State University imeni M. V. Lomonosov, Moscow, 1956. (Dissertation for the Degree of Candidate of Chemical Sciences)

SO: Knizhnaya Letopis' No 44, October 1956, Moscow

KALASHNIKOV, YA. A.

USSR/Fitting Out of Laboratories - Instruments. H-
Their Theory - Construction, and Use.

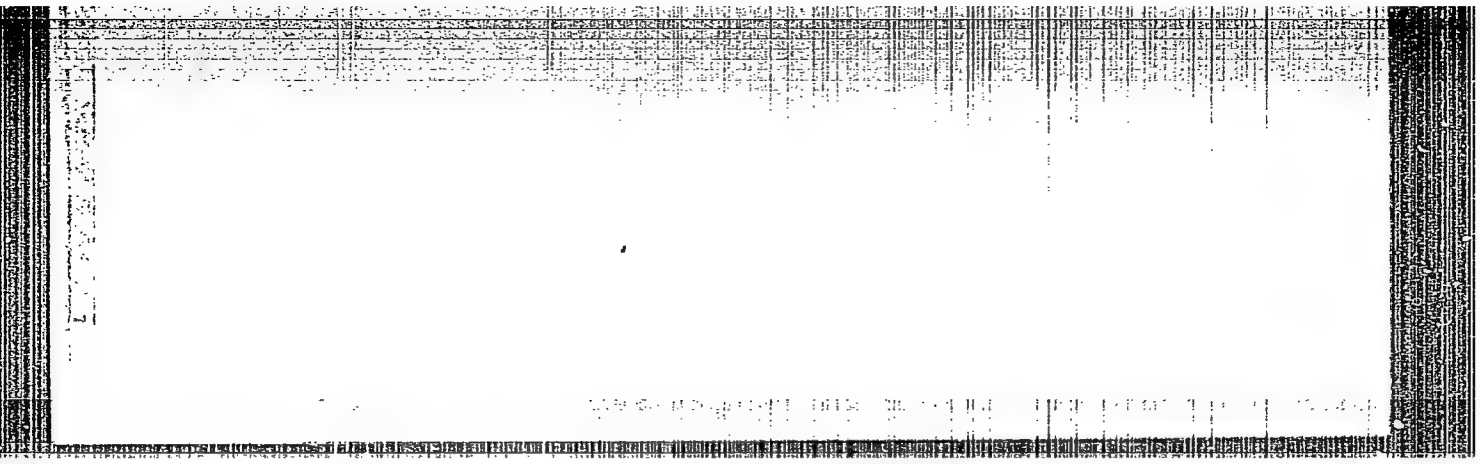
Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8689

Author : Kalashnikov, Ya.A., Vereshchagin, L.F.
Inst :
Title : The Measurement of Temperatures at High Pressures by Radiant Energy Methods and Some Optical Phenomena Observed in Gases Under These Conditions.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 8, 1802-1814.

Abstract : A type FS-A1 transdicer has been used to measure the temperature inside a high-pressure bomb with a photoelectric pyrometer. The heater temperature was measured with a chromel-alumel thermocouple. Nitrogen, argon, and hydrogen were used in the measurements at temperatures of 0-500° and at pressures of 1-1000 kg/cm^2. It has been shown that all optical investigations at elevated pressures and temperatures must be carried out under such

Card 1/2



APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000620020005-6"

28(4) SOV/76-33-9-34/37

AUTHOR: Kalashnikov, Ya. A.

TITLE: Temperature Fluctuations in the Atmosphere of Hydrogen and Helium Caused by Separation of Volatile Substances From the Material of the Apparatus During Heating

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 2110 - 2112 (USSR)

ABSTRACT: At present, high-temperature investigations are usually made by means of apparatus which are heated by an electric resistance furnace housed within the apparatus. In the case of heating in these apparatus in hydrogen atmosphere at a pressure of 1 kg/cm^2, temperature was found to rise sharply up to a maximum and to drop again to a constant value (Fig 2). This is assumed to be due to the separation of steam, enclosed gas, etc from the insulating material of the heating element. Thus, an instantaneous variation in thermal conductivity occurs inside the apparatus (i.e. in the hydrogen atmosphere). To check this problem a corresponding apparatus was designed (Fig 1), and investigations were made with argon, nitrogen, and hydrogen gas. The apparatus is based on a closed steel cylinder (length: 450 mm, inside diameter:

Card 1/2

Temperature Fluctuations in the Atmosphere of Hydrogen and Helium Caused by Separation of Volatile Substances From the Material of the Apparatus During Heating SOV/76-33-9-34/37

20 mm), in which an electric resistance furnace is contained within a thick-walled quartz tube. The latter is a thin-walled steel tube (8 mm thick) insulated with white alumina and NiCr-wire winding. Temperature measurements showed that the above temperature jump is found in hydrogen atmosphere, contrary to nitrogen or argon atmosphere. This is explained by the fact that all gases, except hydrogen and helium exhibit almost the same thermal conductivity, and consequently the above separations bring about an instantaneous variation in thermal conductivity only with the latter. Experiments with a heating body, insulated with alumina instead of with a heat-resistant mixture of concrete, indicated that no variations in the thermal conductivity of the gaseous medium occur since there were no separations visible. There are 2 figures and 3 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov) Akademiya nauk SSSR, Institut fiziki vysokikh davleniy (Academy of Sciences of the USSR, Institute of High-pressure Physics)

SUBMITTED: January 31, 1959

Card 2/2

S/120/61/000/003/025/041
E194/E155

AUTHORS: Bilevich, A.V., Vereshchagin, L.F., and Kalashnikov, Ya.A.

TITLE: A piezometer for determining the density of gases at high pressures and temperatures

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.3, pp.146-150

TEXT: This article describes equipment which can be used to measure the compressibility of gases at pressures up to 3500 kg/cm^2 at temperatures up to 400 °C with a total error not exceeding 0.1%. The novel features of the equipment are the high-pressure piezometer and miniature needle valve. A piezometer described by M. Benedict (Ref.1: J. Amer. Chem. Soc., 1937, Vol.59, 2224) suffers from a number of practical disadvantages from which the present equipment is free. The main parts of the present author's piezometer are a thick-walled bulb 90 mm long, 8 mm internal diameter and 16 mm external diameter. It screws on to a head which carries a capillary tube with a high-pressure needle valve. The needle valve, illustrated in Fig.2, has a steel needle 1, a sealing nut 2 and a gland consisting of

Card 1/5

three metal rings, one of copper 3, and two of steel 4. The steel needle is ground to fit the inner diameter of the gland. The shank at the head of the needle is threaded to fit the threaded internal diameter of the sealing nut. The outer surfaces of the gland rings are a ground fit in the casing. Tests made with nitrogen at a pressure of 4.2 tons/cm^2 and at room temperature, and at 3.5 tons/cm^2 and temperature of 400 °C, gave satisfactory results. Still higher values could no doubt be obtained if other grades of heat-resisting steel were used in the construction. The volume of the piezometer is about 5 mℓ; it was carefully calibrated with carbon tetrachloride. In carrying out tests the piezometer is contained in a hollow copper block which is within a 300 W heating furnace. For purposes of weighing, the piezometer is suspended by a wire from the arm of an analytical balance which is on a bench above the furnace. The piezometer can thus be weighed without withdrawing it from the furnace. The arrangements that are made to fill the piezometer with clean gas and to measure the pressure on a standard manometer call for no comment. The following formula is used to calculate the change in volume

A piezometer for determining the ... S/120/61/000/003/025/041
E194/E155

of the piezometer due to thermal expansion:

$$v_t = v_o(1 + 3.25 \times 10^{5}t + 2.85 \times 10^{-8}t^2 - 1.65 \times 10^{-11}t^3)$$

An expression is also given for the change in volume due to pressure but when this was checked experimentally by a procedure which is described it was found to be in error. This can be seen from the curve of Fig.5, where the volume change as a function of pressure at temperatures of 21, 90 and 147 °C is plotted in tons/cm^2 as curve a. Curve b corresponds to the formula used, which is evidently inaccurate. The test procedure is as follows. The piezometer is heated to the test temperature, then filled with compressed gas and allowed to stand connected to the gas supply with the valve open for 20-30 minutes to equalise the pressure and temperature. The piezometer is then disconnected from the high-pressure gas supply with the needle valve closed and is weighed. The gas is then released and it is weighed again. The volume and weight of gas being accurately known under the given conditions of temperature and pressure, the density and other characteristics can be calculated.

Card 3/5

A piezometer for determining the S/120/61/000/003/025/041
E194/E155

B.K. Muratovskiy is thanked for his assistance. There are 5 figures and 7 references: 3 Soviet and the following 4 English Language references:
Ref.1: as in text above.
Ref.4: A.E.H. Love, Math. Theory of Elas., 1927, London.
Ref.5: P.W. Bridgman, J. Amer. Chem. Soc., 1937, Vol.59, 2233.
Ref.6: P.W. Bridgman, Proc. Amer. Acad. Arts and Sci., 1935, Vol.70, 1.

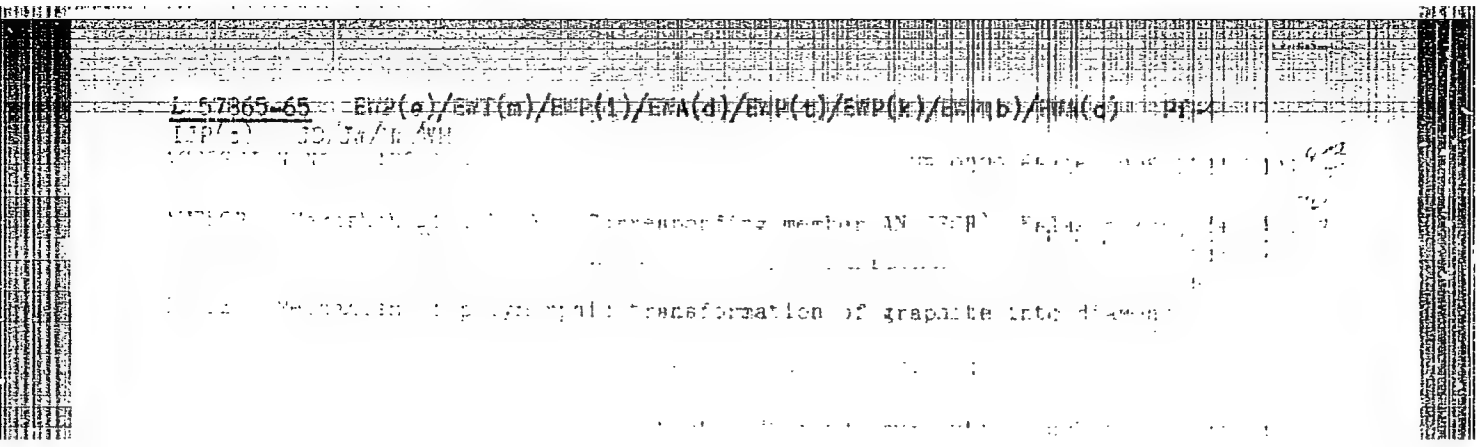
ASSOCIATION: Institut fiziki vysokikh davleniy, AN SSSR
(Institute of High-Pressure Physics, AS USSR)

SUBMITTED: July 12, 1960

Card 4/5

DREVING, Vladimir Petrovich; KALASHNIKOV, Yaroslav Alekseyevich; YAGODOVSKIY, V.D., red.

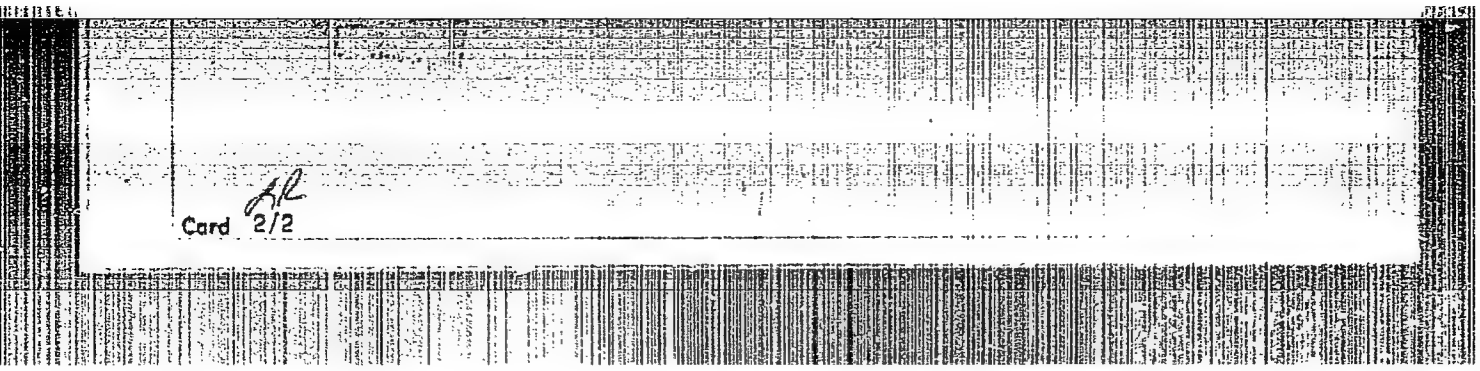
[Phase rule with a presentation of the elements of thermodynamics] Pravilo faz s izlozheniem osnov termodinamiki. Izd.2., perer. i dop. Moskva, Izd-vo Mosk. univ., 1964. 454 p. (MIRA 17:6)



L 57365-65 Enz(e)/EWI(m)/EWP(t)/ETA(d)/EWP(t)/EWP(k)/EWP(b)/EWA(d) Pr-4

[illegible] transformation of graphite into diamond

tances between the carbon atoms in the graphite lattice shrink along the [0001]
lattice and by formation of "diamond" bonds by a diffusion mechanism. This mech-



L 1159-66

ACCESSION NR: AP5021893

ENCLOSURE: 01

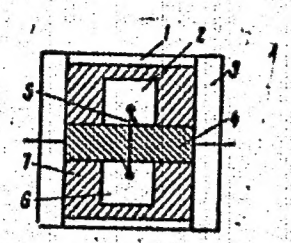


Fig. 1.
Schematic of the introduction of differential thermocouples into the high pressure chamber
1- talcum cover; 2- metallic Bi; 3- talcum isolating screen; 4- teflon and talcum washer; 5- differential chromel-alumel thermocouple; 6- specimen; 7- pressure transducing substance

Card 2/3

L 1159-66

ACCESSION NR: AP5021893

ENCLOSURE: 02

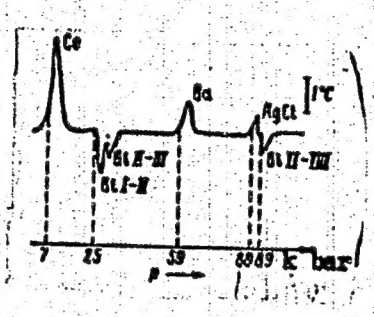


Fig. 2.
Composite thermogram for the different substances

Card 3/3

ACC NR: AP7003645 SOURCE CODE: UR/0020/67/172/001/0076/0076

AUTHOR: Kalashnikov, Ya.A.; Feklichev, Ye.M.; Sukhushina, I.S.; Vereshchagin, L.F. (Academician)

ORG: Institute of Physics of High Pressures, Academy of Sciences, SSSR (Institut fiziki vysokikh davleniy Akademii nauk SSSR); Moscow State University (Moskovskiy gosudarstvennyy universitet) im. M.V. Lomonosov

TITLE: Production of ballas-type synthetic diamonds

SOURCE: AN SSSR. Doklady, v. 172, no. 1, 1967, 76 and insert facing p. 76

TOPIC TAGS: ~~synthetic~~ diamond, synthetic diamond manufacturing, ~~production of synthetic diamond~~, structure crystal

ABSTRACT: Synthetic diamonds up to 6—6.5 mm in size with a central-zone density higher than that of natural diamonds have been produced. The density decreases to standard level at the specimen surface, which consisted of fine bound crystals. The internal and surface structure of the synthetic diamonds compared very closely to the ballas structure of natural diamond. [AZ]

SUB CODE: 11, 13/ SUBM DATE: 24Sep66/ ORIG REF: 001/ OTH REF: 006/
ATD PRESS: 5114

Card 1/1 UDC: 666.233

KALASHNIKOV,Ya.I.; KRYLOV,V.S.; MAKOGON,L.A.; SAMOLETOV,A.I.; NIKULITSKIY, I.V.

The introduction of an intensive poultry breeding system. Mias. ind. SSSR 26 no.3:26-29 '55. (MLRA 8:9)

1. Zamestitel' ministra promyshlennosti myasnykh i molochnykh produktov RSFSR (for Kalashnikov). 2. Tekhnoruk Kuntsevskoy ptitsefabriki (for Krylov). 3. Tekhnoruk Glebovskoy ptitsefabriki (for Makogon). 4. Tekhnoruk Tomilinskoy ptitsefabriki (for Samoletov). 5. Direktor Brattsevskoy ptitsefabriki (for Nikulitskiy)

(Poultry industry)